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<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/771,462	MIYATA ET AL.	
	Examiner	Art Unit	
	Faye Polyzos	2878	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to 5 February 2004.
2.  The allowed claim(s) is/are 1-12.
3.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All    b)  Some\*    c)  None    of the:
    1.  Certified copies of the priority documents have been received.
    2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftperson's Patent Drawing Review (PTO-948)
3.  Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 3/4/04
4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5.  Notice of Informal Patent Application (PTO-152)
6.  Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other \_\_\_\_\_.

### **EXAMINER'S STATEMENT OF REASONS FOR ALLOWANCE**

#### ***Allowable Subject Matter***

1. Claims 1-12 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding independent claim 1, the prior art does not disclose or fairly suggest an X-ray imaging device comprising an portion arranged corresponding to a surface of X-ray incidence having sensitivity to both X-ray with a predetermined energy range and to visible light with a predetermined wavelength range to pick up images of X-ray and visible light.

The examiner notes that while it is known in the art of an X-ray imaging device comprising two scintillation screens, each associated with its own respective CCD detector wherein one scintillator is reactive to high-energy x-rays and generates an optical image of the spatial intensity pattern of the high-energy x-ray pattern and its associated detector detects the image and generates an electronic representation of the high-energy x-ray pattern. The other scintillator is respective to low-energy x-rays to simultaneously generate an optical image of the low-energy pattern. Its associated detector generates an electronic representation of the low-energy x-ray pattern and a data processor performs the correlation of measurements for the x-rays at two different energy levels (see for example Karella et al – US 6,031,892 A – Fig. 19 and col. 2, lines 30-43), the prior art does not suggest a single X-ray imaging device that can detect any X-ray with a wide energy range (lower and higher energy range).

Regarding independent claim 11, the prior art does not disclose or fairly suggest an X-ray imaging device comprising an imaging portion formed on an opposite surface to a surface of X-ray incidence on a semiconductor substrate, having sensitivity to both X-ray with a predetermined energy range and to visible light with a predetermined wavelength range to pick up images of X-ray and visible light.

The examiner notes that while it is known in the art of an X-ray imaging device comprising two scintillation screens, each associated with its own respective CCD detector wherein one scintillator is reactive to high-energy x-rays and generates an optical image of the spatial intensity pattern of the high-energy x-ray pattern and its associated detector detects the image and generates an electronic representation of the high-energy x-ray pattern. The other scintillator is respective to low-energy x-rays to simultaneously generate an optical image of the low-energy pattern. Its associated detector generates an electronic representation of the low-energy x-ray pattern and a data processor performs the correlation of measurements for the x-rays at two different energy levels (see for example *Karellas et al* – US 6,031,892 A – Fig. 19 and col. 2, lines 30-43) and a scintillator arranged to cover the imaging portion of emitting visible light to absorb a high energy range (see for example *Mori et al* – US 2002/0158208 A1 – and [0012]), the prior art does not suggest a single X-ray imaging device that can detect any X-ray with a wide energy range (lower and higher energy range).

Regarding independent claim 12, the prior art does not disclose or fairly suggest an X-ray imaging device comprising an imaging portion formed on a surface of X-ray incidence on a semiconductor substrate, having sensitivity to both X-ray with a

predetermined energy range and to visible light with a predetermined wavelength range to pick up images of X-ray and visible light.

The examiner notes that while it is known in the art of an X-ray imaging device comprising two scintillation screens, each associated with its own respective CCD detector wherein one scintillator is reactive to high-energy x-rays and generates an optical image of the spatial intensity pattern of the high-energy x-ray pattern and its associated detector detects the image and generates an electronic representation of the high-energy x-ray pattern. The other scintillator is respective to low-energy x-rays to simultaneously generate an optical image of the low-energy pattern. Its associated detector generates an electronic representation of the low-energy x-ray pattern and a data processor performs the correlation of measurements for the x-rays at two different energy levels (see for example *Karellas et al* – US 6,031,892 A – Fig. 19 and col. 2, lines 30-43) and a scintillator arranged to cover the imaging portion of emitting visible light to absorb a high energy range (see for example *Mori et al* – US 2002/0158208 A1 – and [0012], the prior art does not suggest a single X-ray imaging device that can detect any X-ray with a wide energy range (lower and higher energy range).

The remaining claims 2-10 are allowable based on their dependency.

2. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Art Unit: 2878

***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Faye Polyzos whose telephone number is 571-272-2447. The examiner can normally be reached on Monday thru Friday from 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

4. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FP



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